
MODE 1 ALARM TROUBLE LOCATION

This Section provides alarm trouble location procedures for the ITT D448 multiplex terminal when operated in Mode 1. The procedures can be used to clear any alarm condition.

This Section has been reissued to include information on the handling of MOS-equipped units and to correct Tables A and B.

The information contained in this Section applies only to alarm conditions. For non-alarm transmission and signaling trouble location, refer to Section ITTR-18-543.

WARNING: *This equipment contains static-sensitive (MOS) devices. Section ITTR-18-599 contains handling instructions for MOS-equipped units.*

Descriptions of the indicators on the Mode 1 common equipment are provided in Table A.

When replacing a unit during trouble location, the options on the new unit should be selected identically to the options on the replaced unit. When a unit is replaced and the trouble does not clear, the original unit should be reinstalled in its position.

Note: In the unlikely case that multiple failures should occur, the failure indications should be cleared in the following order:

- (1) PWR FAIL LED on PCU
 - (2) TPAF LED on TPA unit
 - (3) NO PULSES LED on LI-1
 - (4) LINE ERRORS LED on LI-1
 - (5) SYNC FAIL on LI-1
 - (6) FR LOSS LED on RLU
 - (7) RMA LED on TPA unit
 - (8) TPA lamp on TPA unit
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TABLE A
INDICATOR FUNCTION

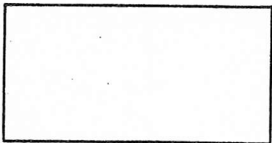
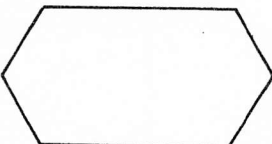
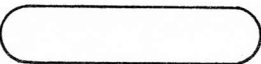
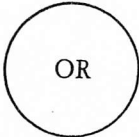
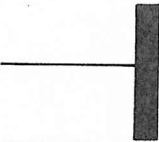
UNIT	INDICATOR	FUNCTION (WHEN ON)
PCU	PWR FAIL LED (red)*	Indicates one of the following conditions: (a) loss of - 48V; (b) overvoltage condition on - 5 or - 10V (causes PCU to shut down causing power failure); (c) overvoltage condition on - 2.5 or - 7.5V; (d) undervoltage condition on + 7, - 2.5, - 7.5, - 10 or - 17V.
LI-1	LINE ERRORS LED (red)*	Indicates bipolar violations being received from incoming T1C line; cannot be turned on during looped conditions.
	NO PULSES LED (red)*	Indicates that no data being received by LI-1 from incoming T1C line.
	SYNC FAIL LED (red)*	Indicates failure of LI-1 to synchronize to receive data bit stream.
RLU	FR LOSS LED (red)*	Indicates a failure to synchronize with incoming data.
TPA Unit	TPA lamp (red)*	Indicates that trunk processing is taking place (digroup in alarm) or that a CGA bus has been pulled to ground.
	LCA LED (red)*	Indicates that the LCA bus is active (digroup in local alarm); may be caused by a unit out of its connector or by a failure indicated by an LED on another unit.
	RMA LED (yellow)*	Indicates that the far-end multiplexer is experiencing a local alarm and is sending remote alarm code (all bit 2s are zeros). Note: If RMA and LCA LEDs are both on, it indicates that the far-end multiplexer is looped (all 1s received by near-end).
	TPAF LED (red)*	Indicates that TPA unit has failed.
	ACO LED (green)	Indicates that the ACO button has been pressed to cut off office alarms.
	LOOP LED (green)	Indicates that the digroup is looped (either by pressing of LOOP button on TPA unit or by inserting shorting plug in LOOP test points on LI-1).
	TP MEM LED (yellow)	Indicates that trunk processing is taking place or has taken place; will turn on only if TP MEM button on TPA unit is in on position (pushed in); will turn off only when TP MEM button is in off position (released).

*For the purpose of the procedures in this Section, these indicators are considered alarm indicators.

The trouble location procedures are presented in a GO/NO GO format. All trouble location should begin by performing the procedures in Fig. 1; all detailed trouble location procedures are referenced from Fig. 1. ***Under no circumstances should any trouble location be attempted without first performing the procedures in Fig. 1.***

Descriptions of the symbols used in the GO/NO GO diagrams are provided in Table B.

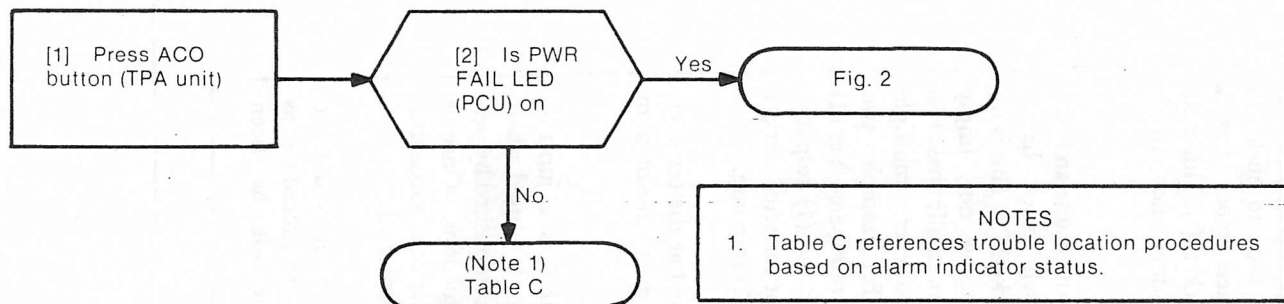
TABLE B
SYMBOL DESCRIPTIONS

SYMBOL	NAME	DESCRIPTION
	Instruction Block	An instruction block is used to enclose a discrete statement. Each block has a reference number in brackets []. This is for reference only and does not imply sequence.
	Decision Block	A decision block is used to enclose an interrogative statement. Each block has a reference number in brackets []. This is for reference only and does not imply sequence. Each block normally has two responses (Yes-No); however, multiple responses are possible. For example, two "Yes" responses will be numbered Yes (1) and Yes (2). Always try the (1) response first. If the problem is not corrected, repeat the procedure with the (2) response.
	Reference Bubble	A reference bubble is used at the termination of a flowline to represent an exit from that figure or subfigure.
	OR Operation	The OR operation symbol is a junction point within a procedure. It is used where the same result can be accomplished by performing different instructions. Once a single input instruction has been successful, the result has been accomplished.
	End-of-Procedure	The end-of-procedure symbol is used to denote that the flow-charted procedure, as defined by the procedure title, has been completed.

APPARATUS

1—Volt-ohm meter (VOM) (WE KS-14510, Triplett 630, or equivalent)

TERMINAL IN ALARM (TPA LAMP ON)



A1806-A

Fig. 1—Terminal in Alarm

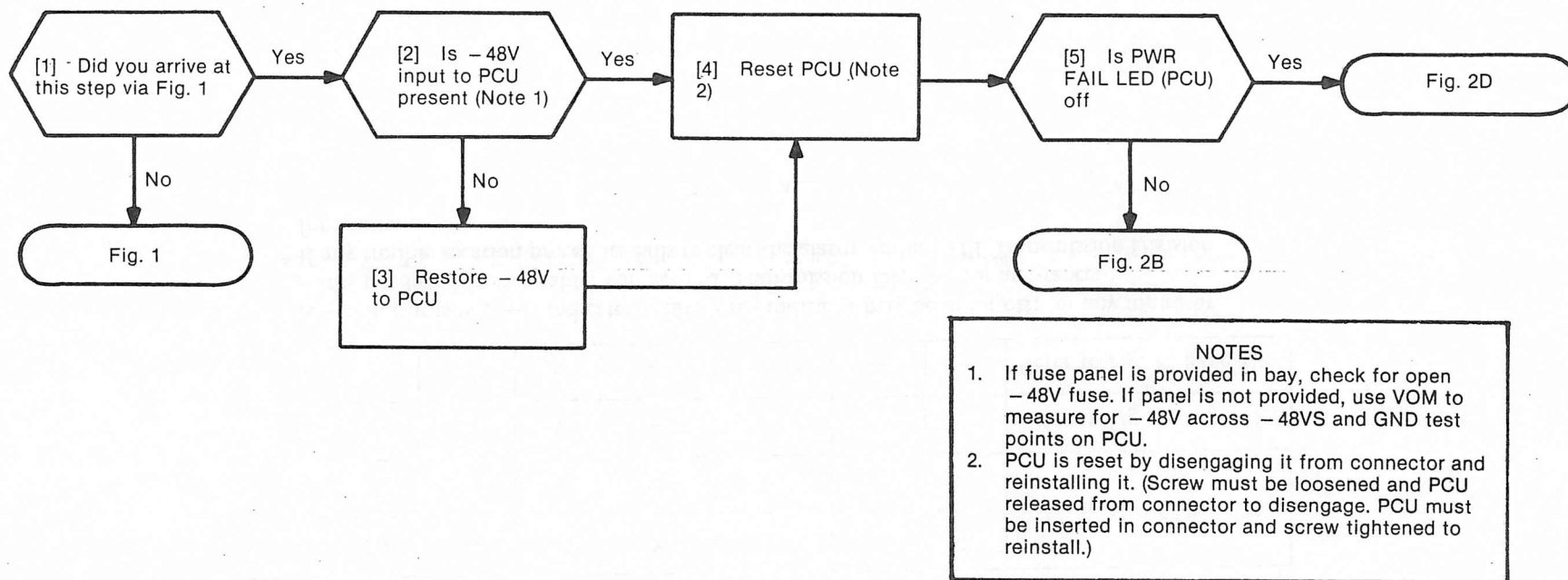
TABLE C

TROUBLE LOCATION PROCEDURES TO CLEAR ALARM

ALARM INDICATOR STATUS†								TROUBLE LOCATION PROCEDURE ‡
TPA UNIT				LI-1			RLU	
RMA	LCA	TPAF	TPA	LINE ERRORS	NO PULSES	SYNC FAIL	FR LOSS	
—	NA	X	X	NA	NA	NA	NA	Refer to Fig. 3, Page 9
—	X	—	X	—	X	—	NA	Refer to Fig. 4, Page 10
—	X	—	X	—	—	X	—	Refer to Fig. 5, Page 12
—	NA	—	NA	X	—	—	NA	Refer to Fig. 6, Page 13
—	X	—	X	NA	—	—	X	
X	—	—	X	—	—	—	—	Refer to Fig. 7, Page 15
—	—	—	X	—	—	—	—	Refer to Fig. 8, Page 18

† X - indicator is on; — - indicator is off; NA - indicator may be on or off; for any indicator status not listed in this table, contact ITT Transmission Division for assistance.

‡ If any trouble location procedure fails to clear the alarm, contact ITT Transmission Division for assistance.



A1807

Fig. 2A—Power Failure Trouble Location

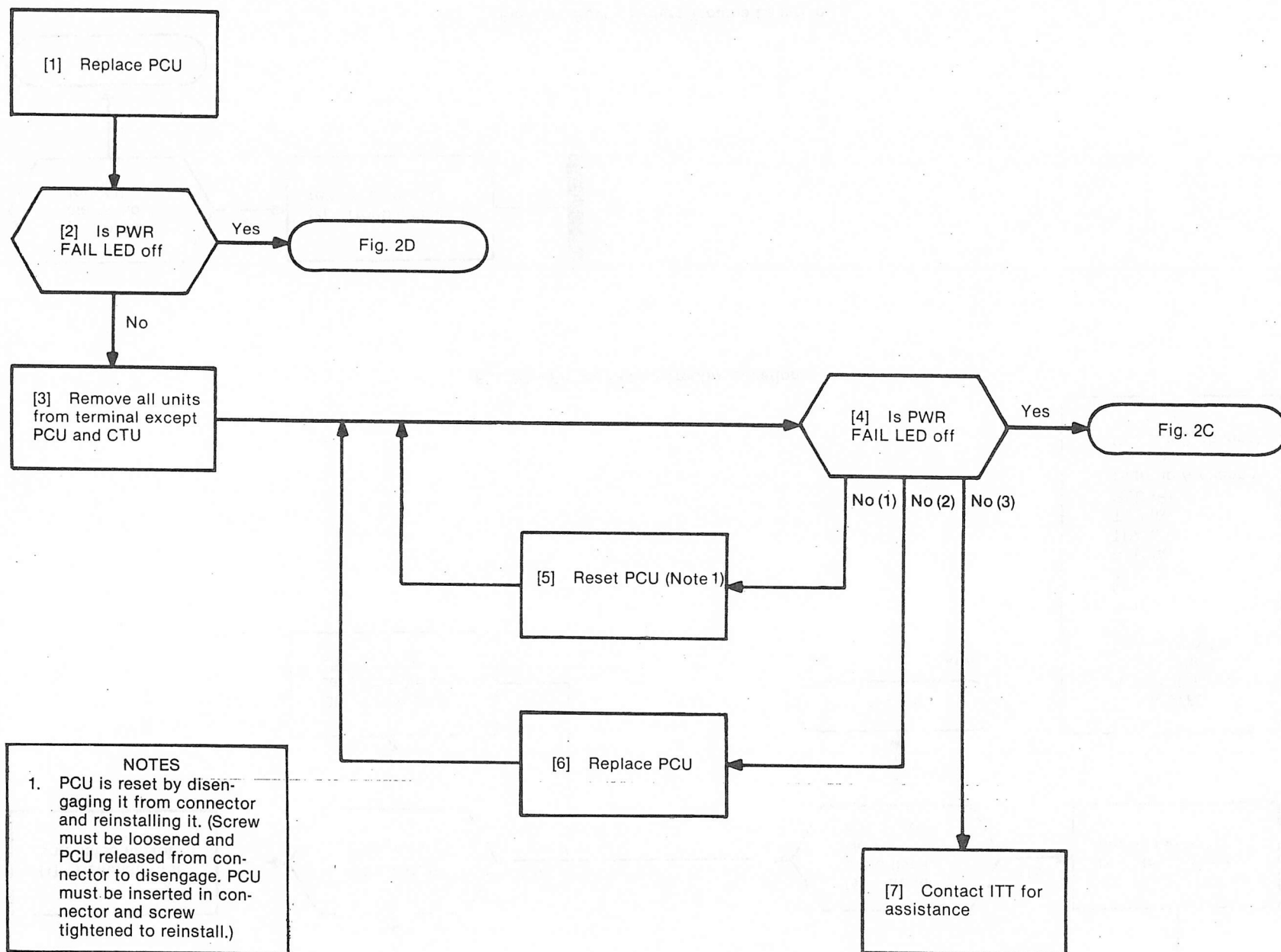


Fig. 2B—Power Failure Trouble Location

A1808-A

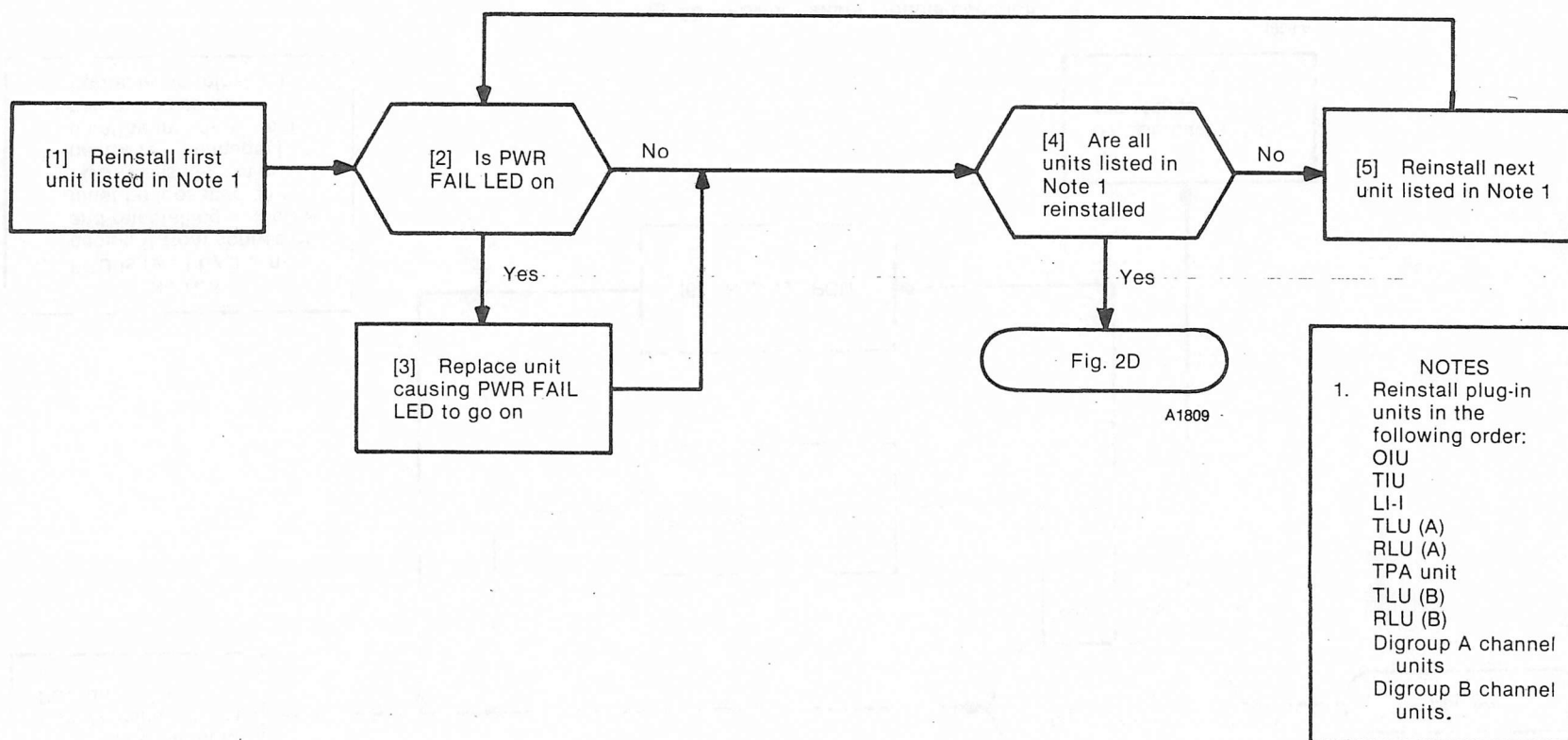


Fig. 2C—Power Failure Trouble Location

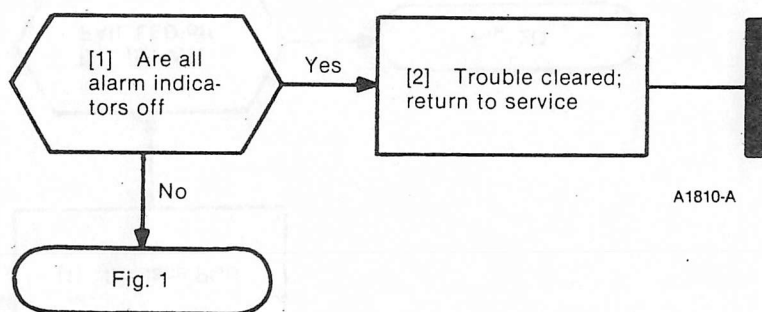
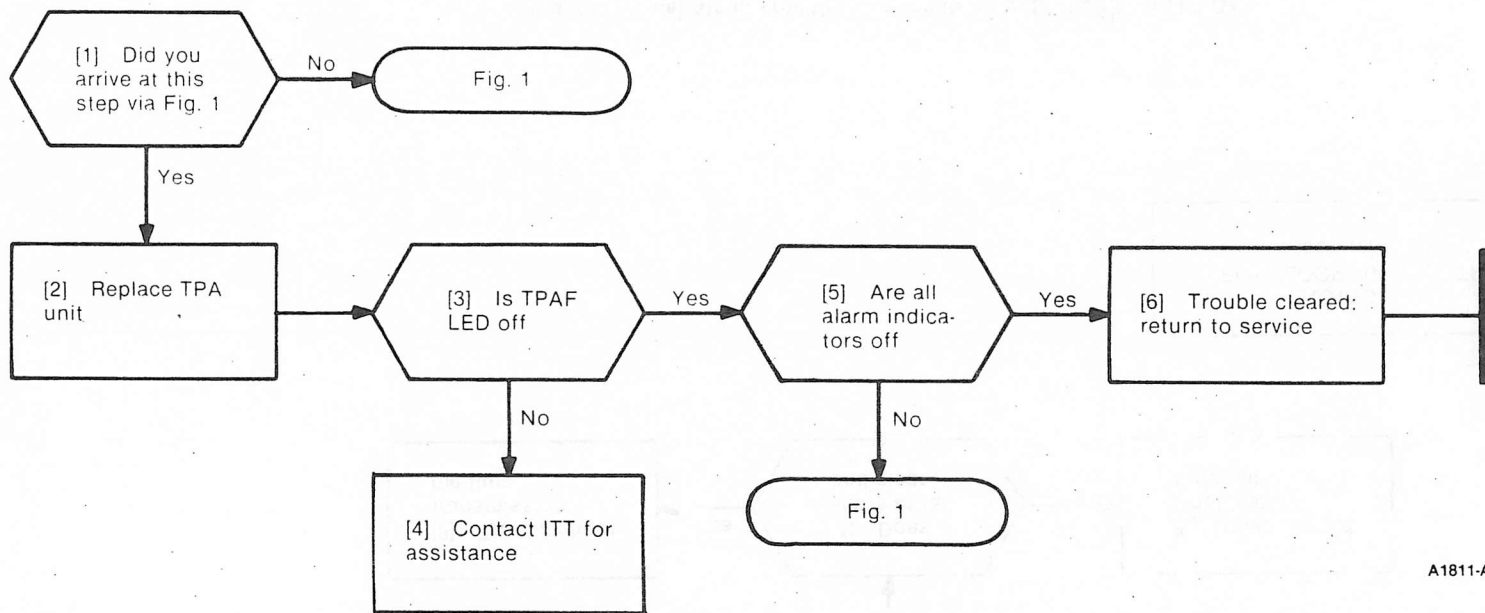
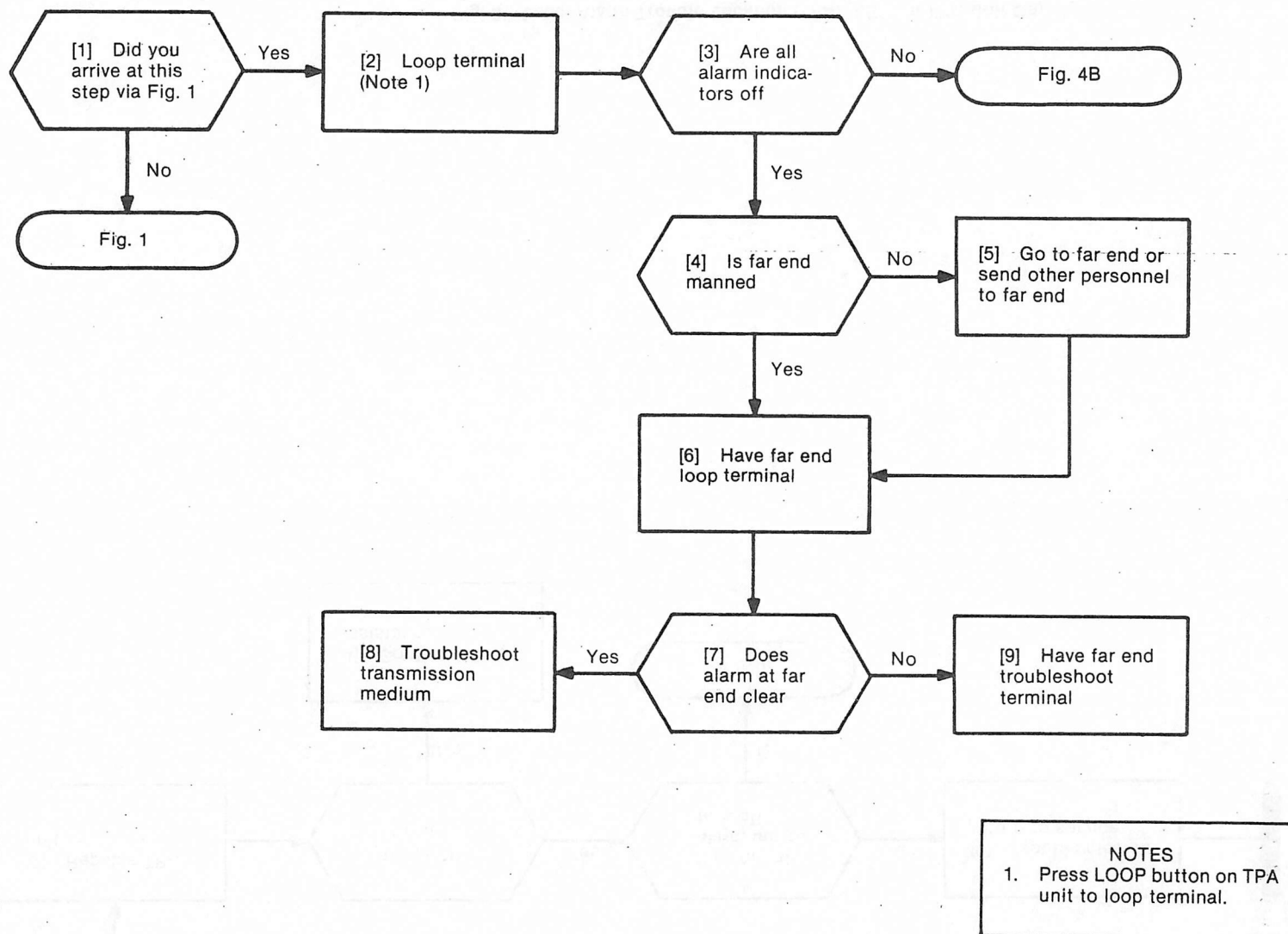


Fig. 2D—Power Failure Trouble Location



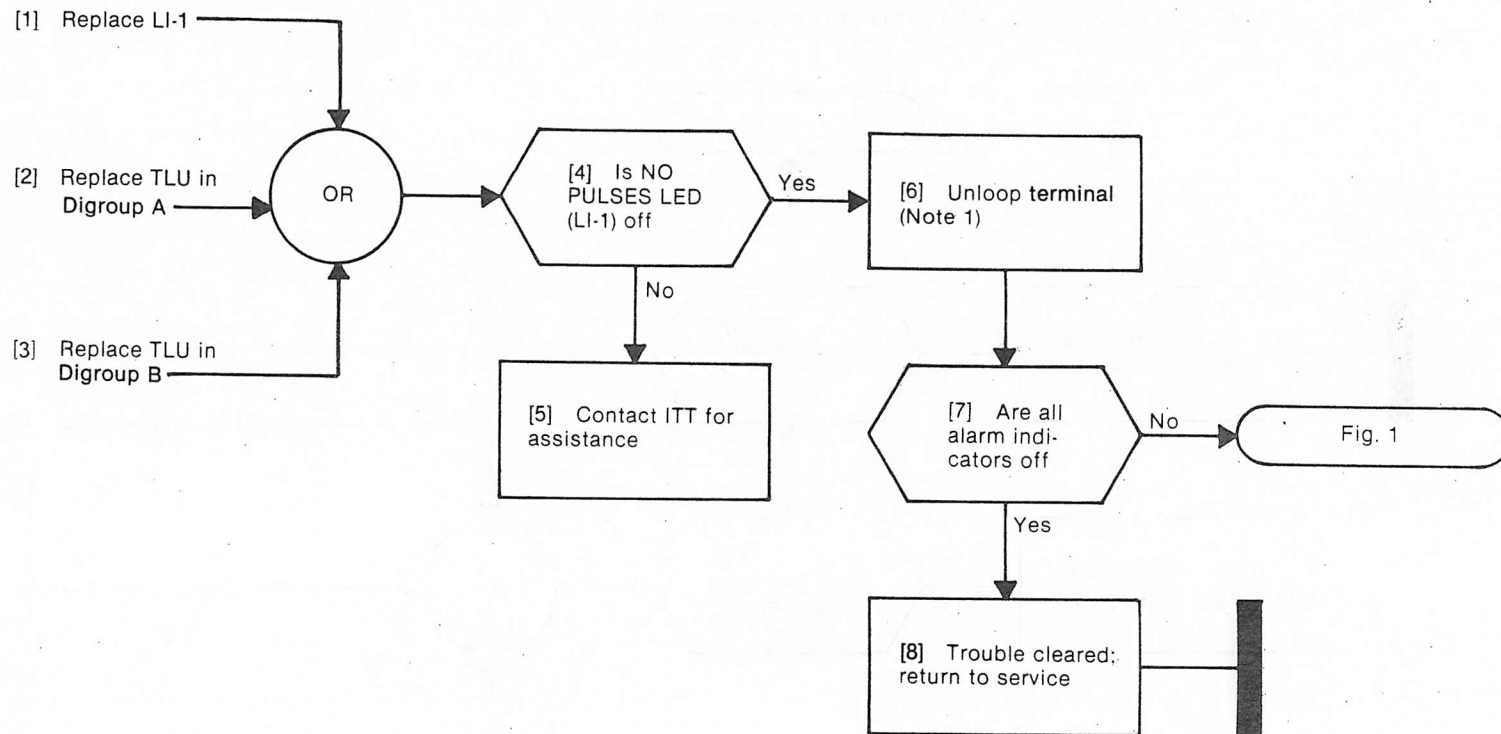
A1811-A

Fig. 3—Local Alarm Trouble Location (TPAF LED on TPA Unit On)



A1812-A

Fig. 4A—Local Alarm Trouble Location (NO PULSES LED on LI-1 On)



NOTES
1. Press LOOP button on TPA unit to unloop terminal.

A1813-A

Fig. 4B—Local Alarm Trouble Location (NO PULSES LED on LI-1 On)

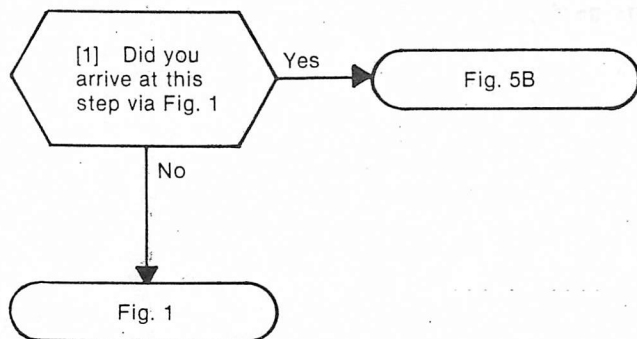


Fig. 5A—Local Alarm Trouble Location (SYNC FAIL LED on LI-1 On)

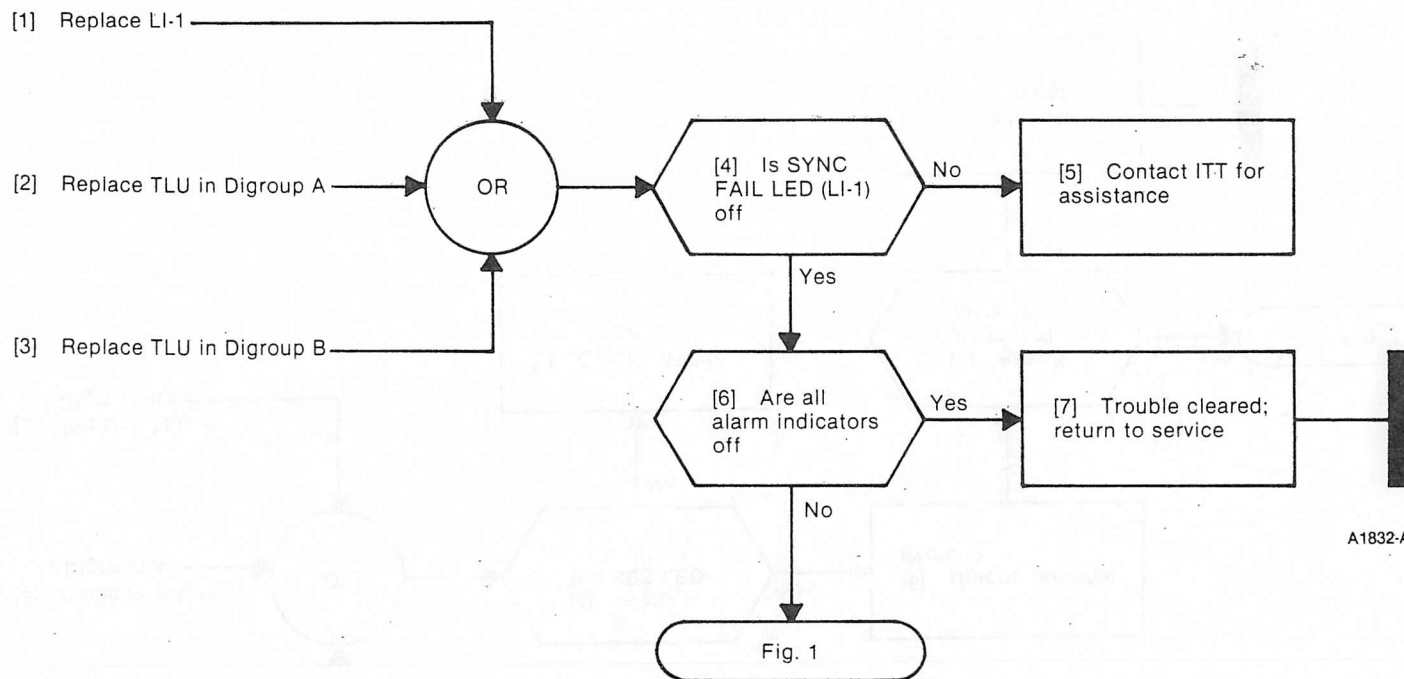


Fig. 5B—Local Alarm Trouble Location (SYNC FAIL LED on LI-1 On)

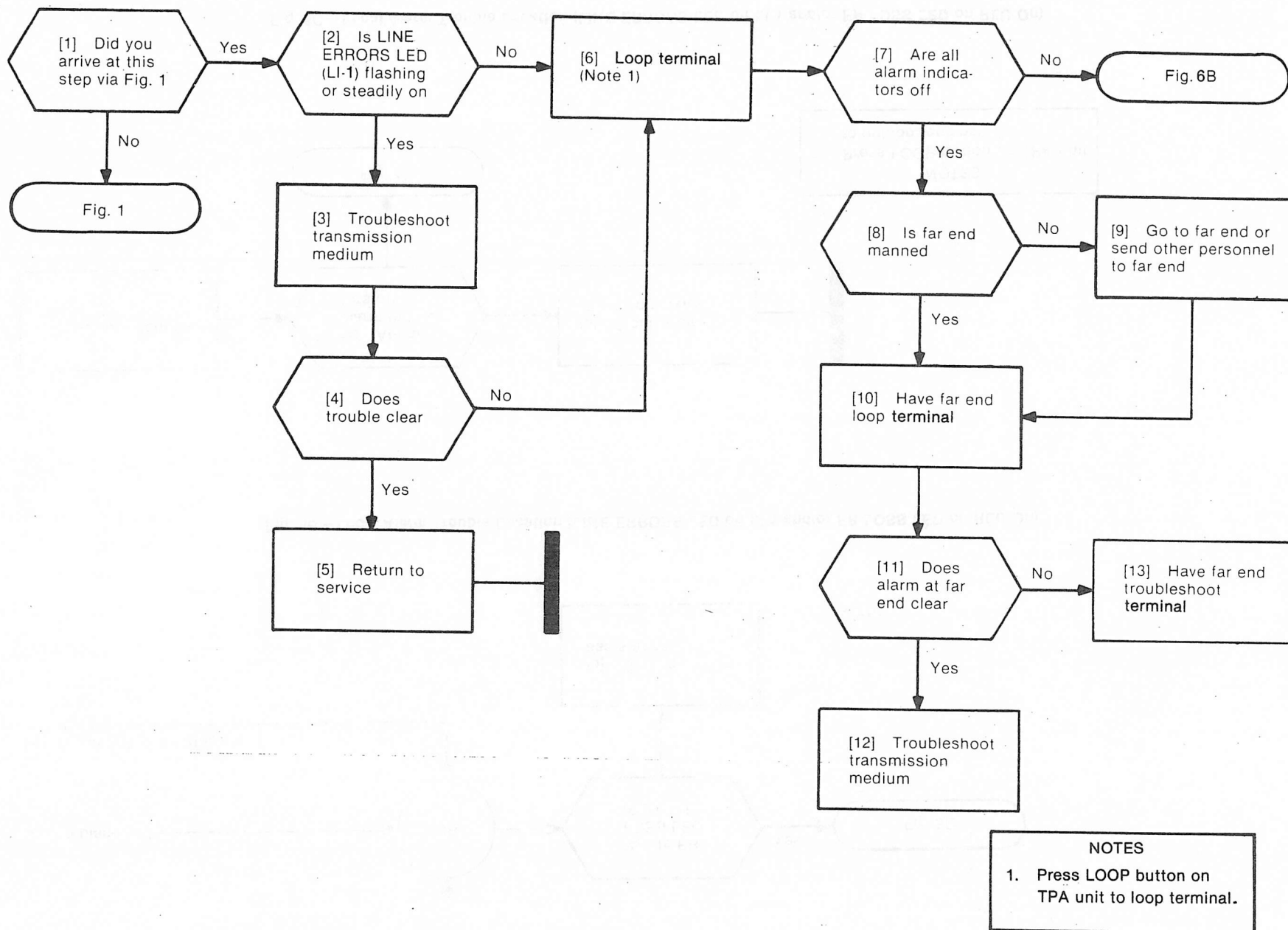


Fig. 6A—Local Alarm Trouble Location (LINE ERRORS LED on LI-1 and/or FR LOSS LED on RLU On)

A1814-A

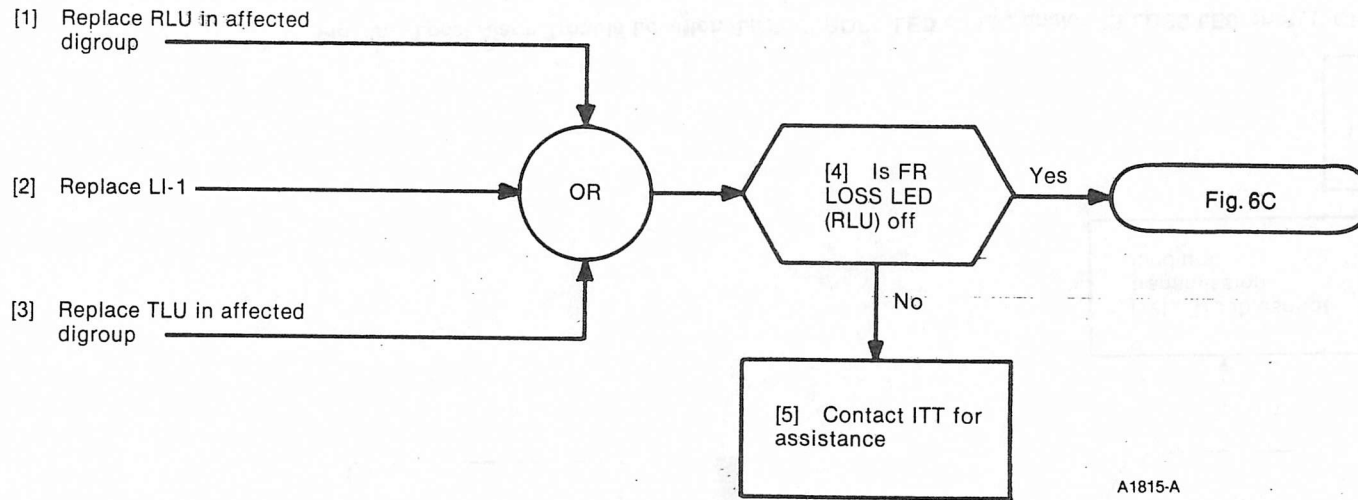


Fig. 6B—Local Alarm Trouble Location (LINE ERRORS LED on LI-1 and/or FR LOSS LED on RLU On)

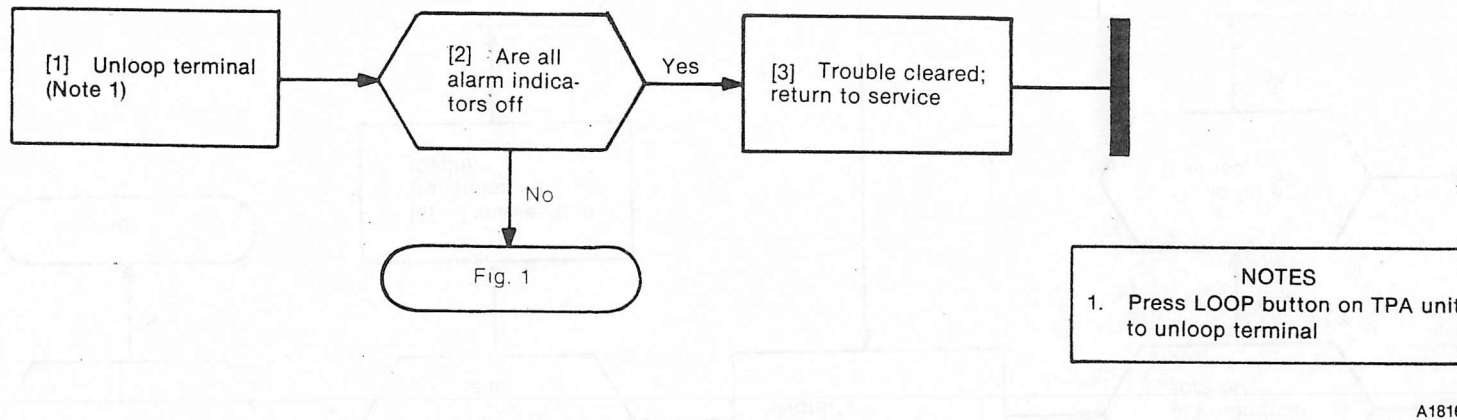
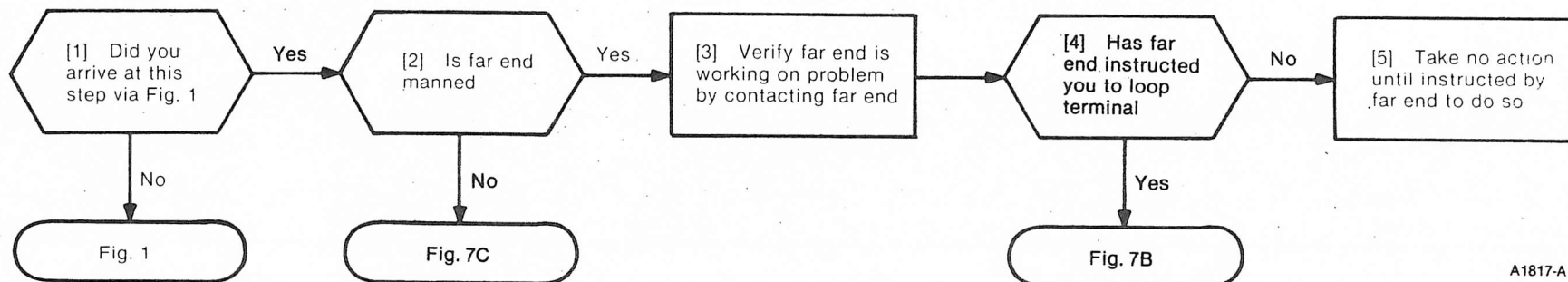


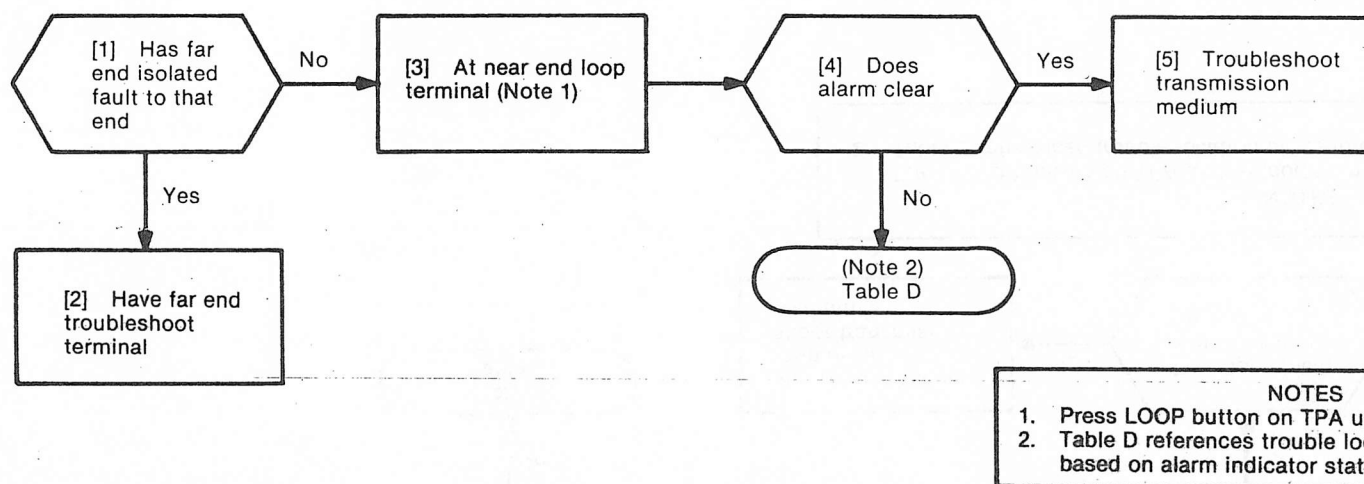
Fig. 6C—Local Alarm Trouble Location (LINE ERRORS LED on LI-1 and/or FR LOSS LED on RLU On)

TERMINAL IN REMOTE ALARM (RMA LED AND TPA LAMP ON)



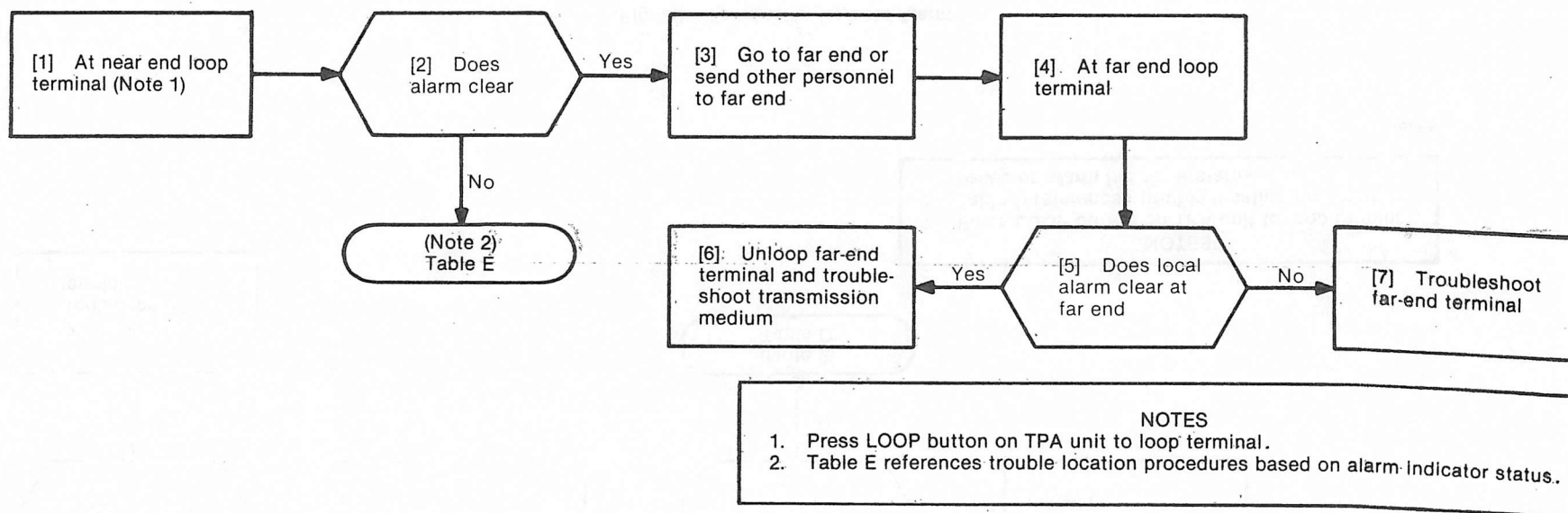
A1817-A

Fig. 7A—Terminal in Remote Alarm



A1818-A

Fig. 7B—Terminal in Remote Alarm



A1819-A

Fig. 7C—Terminal in Remote Alarm

TABLE D

**TROUBLE LOCATION PROCEDURES TO CLEAR REMOTE ALARM
WHEN FAR-END OFFICE IS MANNED**

ALARM INDICATOR STATUS†						TROUBLE LOCATION PROCEDURE‡
TPA UNIT		LI-1			RLU	
LCA	TPA	LINE ERRORS	NO PULSES	SYNC FAIL	FR LOSS	
X	X	—	X	X	NA	Refer to Fig. 9, Page 19
X	X	—	—	X	—	Refer to Fig. 10, Page 20
X	X	—	—	—	X	Refer to Fig. 11, Page 21

†X - indicator is on; — - indicator is off; NA - indicator may be on or off; for any indicator status not listed in this table, contact ITT for assistance.

‡If any trouble location procedure fails to clear the alarm, contact ITT for assistance.

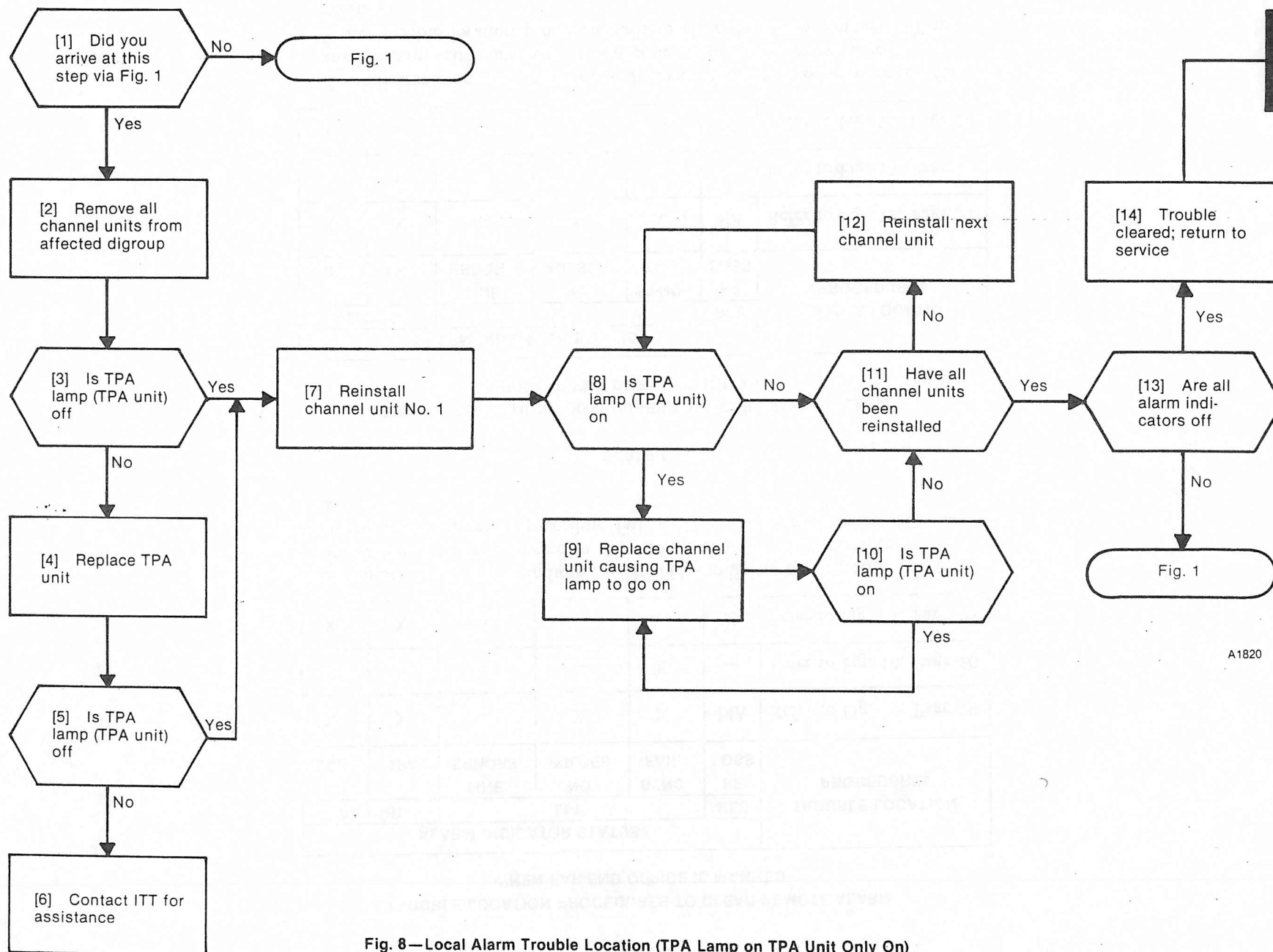
TABLE E

**TROUBLE LOCATION PROCEDURES TO CLEAR REMOTE ALARM
WHEN FAR-END OFFICE IS UNMANNED**

ALARM INDICATOR STATUS†						TROUBLE LOCATION PROCEDURE‡
TPA UNIT		LI-1			RLU	
LCA	TPA	LINE ERRORS	NO PULSES	SYNC FAIL	FR LOSS	
X	X	—	X	X	NA	Refer to Fig. 12, Page 22
X	X	—	—	X	—	Refer to Fig. 13, Page 24
X	X	—	—	—	X	Refer to Fig. 14, Page 26

†X - indicator is on; — - indicator is off; NA - indicator may be on or off; for any indicator status not listed in this table, contact ITT for assistance.

‡If any trouble location procedure fails to clear the alarm, contact ITT for assistance.



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Fig. 8—Local Alarm Trouble Location (TPA Lamp on TPA Unit Only On)

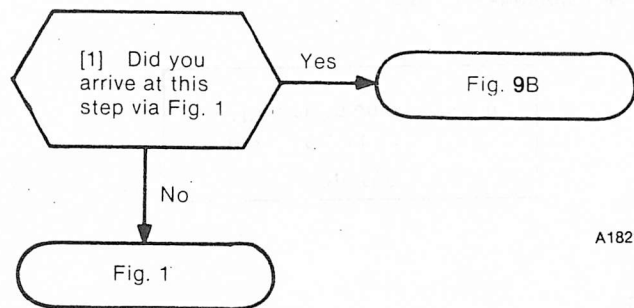


Fig. 9A—Remote Alarm Trouble Location — Far End Manned (NO PULSES LED on LI-1 On)

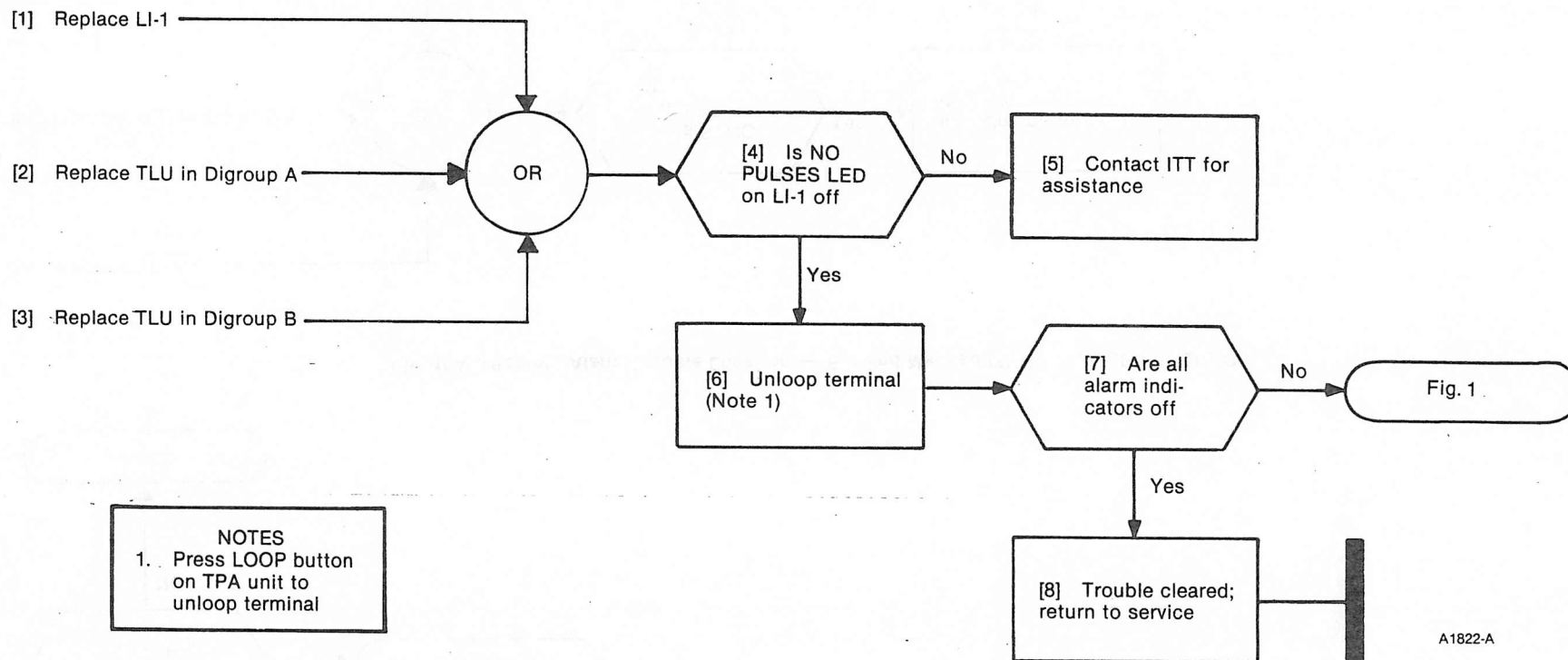


Fig. 9B—Remote Alarm Trouble Location — Far End Manned (NO PULSES LED on LI-1 On)

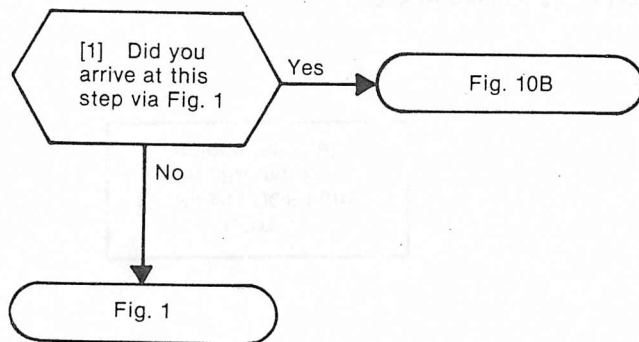


Fig. 10A—Remote Alarm Trouble Location — Far End Manned (SYNC FAIL LED on LI-1 On)

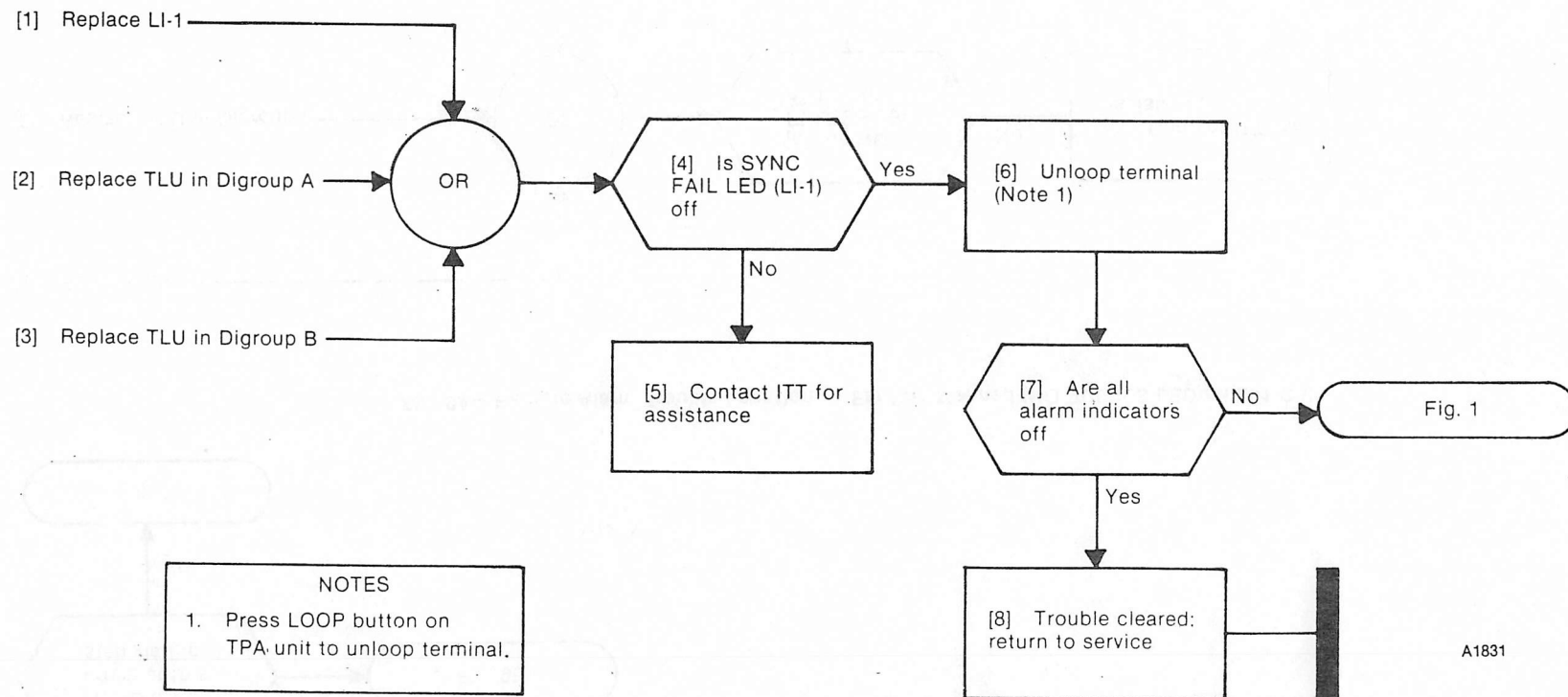


Fig. 10B—Remote Alarm Trouble Location — Far End Manned (SYNC FAIL LED on LI-1 On)

A1831

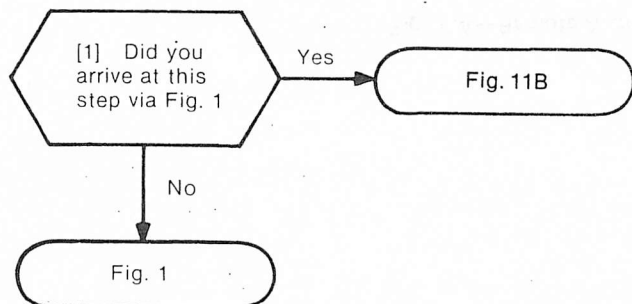


Fig. 11A—Remote Alarm Trouble Location — Far End Manned (FR LOSS LED ON RLU On)

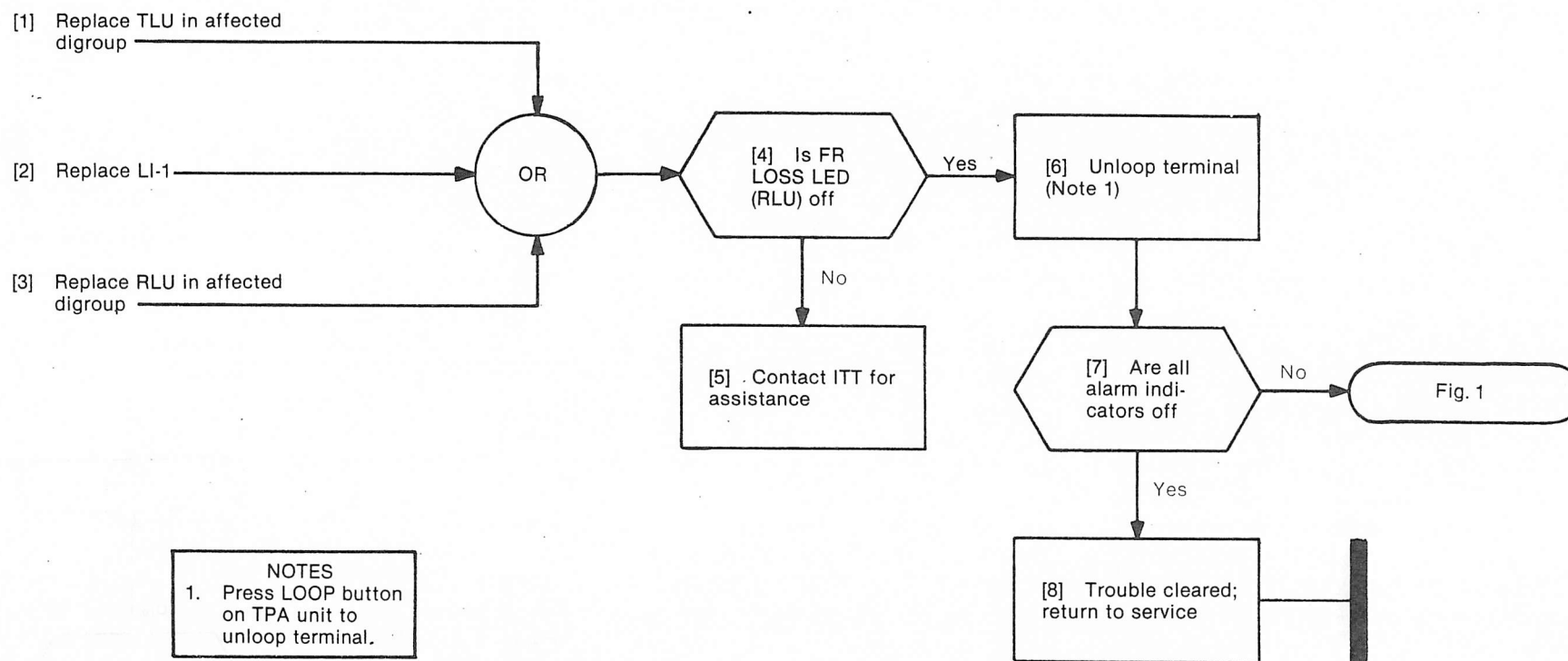


Fig. 11B—Remote Alarm Trouble Location — Far End Manned (FR LOSS LED on RLU On)

A1824-A

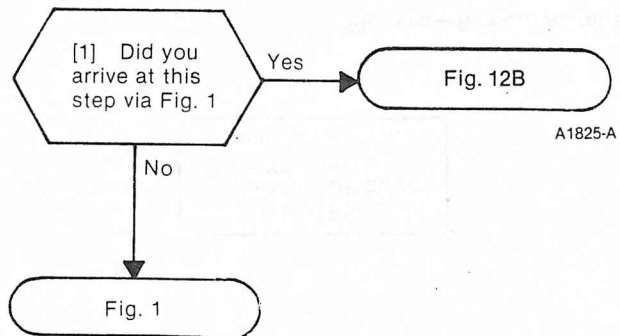


Fig. 12A—Remote Alarm Trouble Location — Far End Unmanned (NO PULSES LED on LI-1 On)

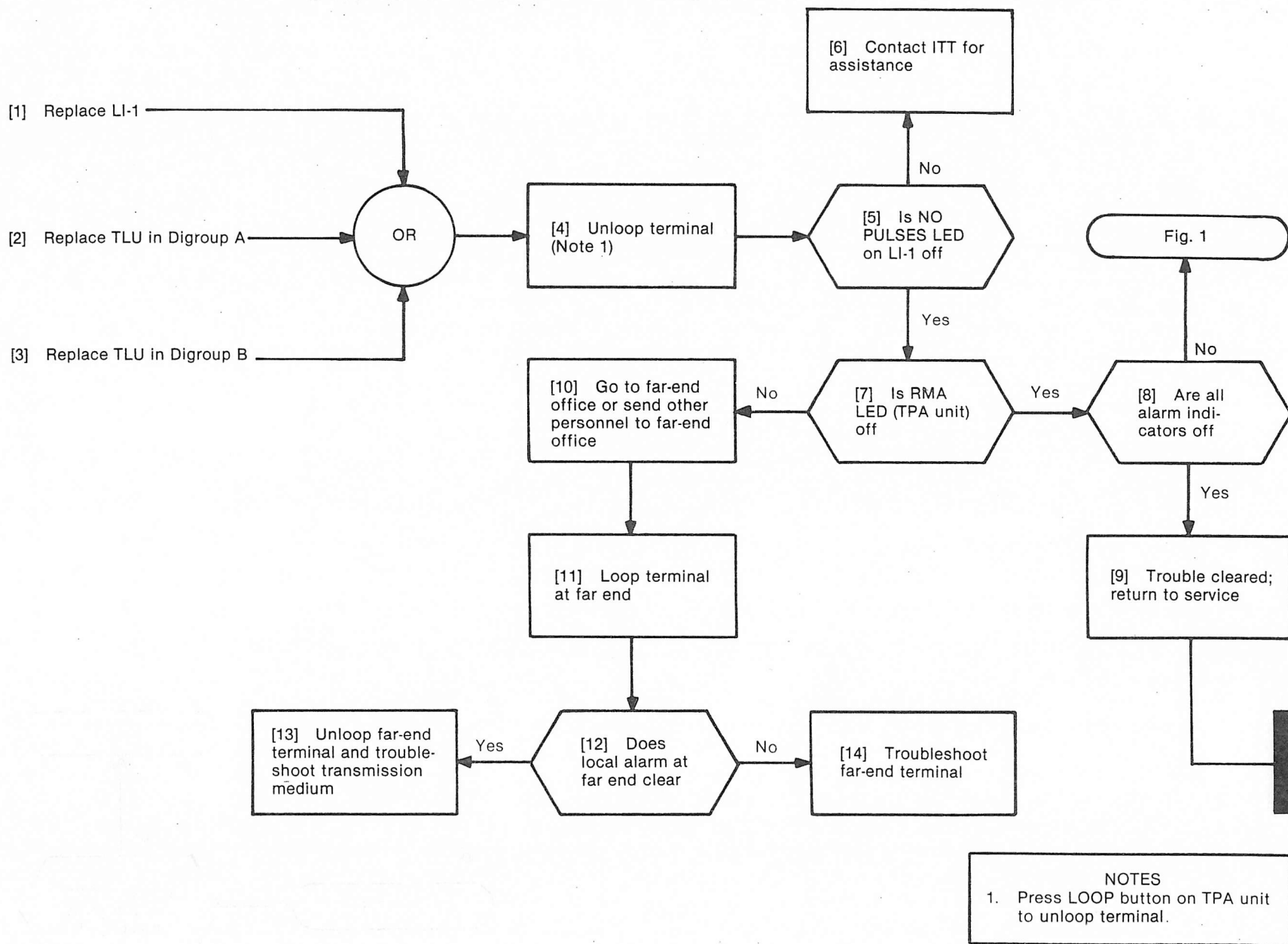


Fig. 12B—Remote Alarm Trouble Location — Far End Unmanned (NO PULSES LED on LI-1 On)

A1826-A

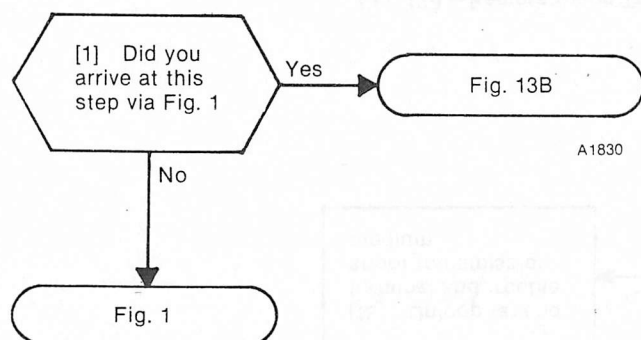


Fig. 13A—Remote Alarm Trouble Location — Far End Unmanned (SYNC FAIL LED on LI-1 On)

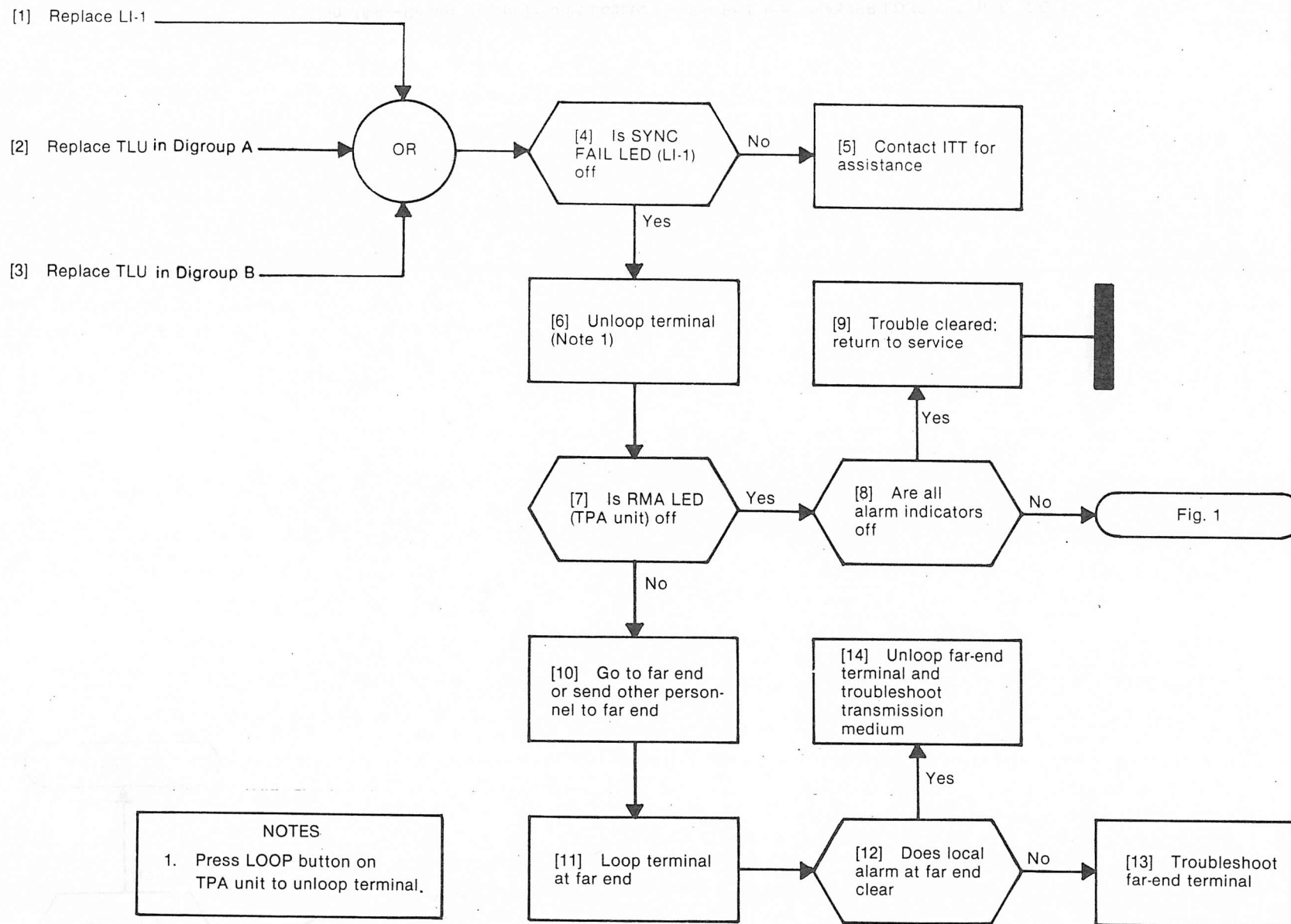


Fig. 13B—Remote Alarm Trouble Location — Far End Unmanned (SYNC FAIL LED on LI-1 On)

A1829

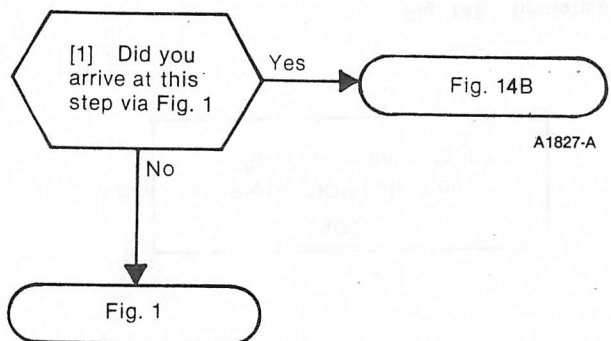


Fig. 14A—Remote Alarm Trouble Location — Far End Unmanned (FR LOSS LED on RLU On)

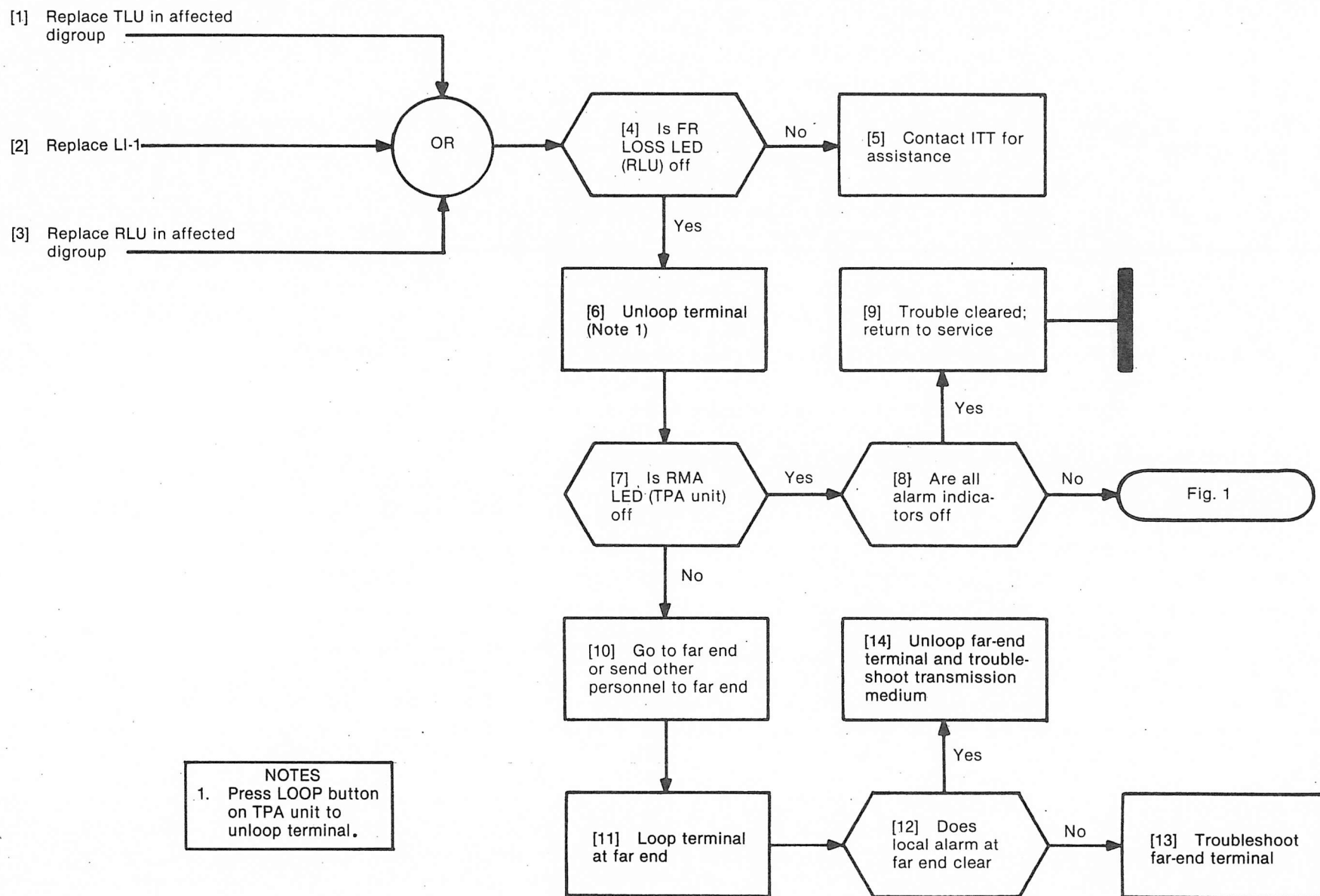


Fig. 14B—Remote Alarm Trouble Location — Far End Unmanned (FR LOSS LED on RLU On)

A1828-A